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August 1957

# AGRICULTURAL MARKETING

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Industry-Government cooperation pays off in marketing research • More bulk milk  
Protecting stored products from Indian-meal moths • Frozen prepared foods growing fast

U. S. DEPARTMENT OF AGRICULTURE • AGRICULTURAL MARKETING SERVICE



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## Cover

AMS transportation specialists on our cover prepare a refrigerated truck-trailer for over-the-road performance tests designed to develop uniform standards for rating these vehicles. Previous research has shown widespread variance in performance. The story on pages 8 and 9 points to the important role of cooperation between government agencies and private industry in carrying on this and many other research projects in AMS.

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# PROTECTING STORED PRODUCTS FROM

## INDIAN-MEAL MOTHS

*By Ben H. Kantack and Hamilton Laudani*

INDIAN-MEAL moths, whose larvae dine on stored grain, nuts and other foodstuffs, have been having themselves a picnic. For the past two seasons, without too much regard for currently used insecticides, they have been more troublesome than usual, eating their way through a wide variety of stored products.

But their feasting days are numbered. AMS scientists at the USDA Savannah Stored-Products Insects Laboratory have found a highly effective way to kill both larvae and adult moths. By using wettable powder residues, researchers have been able to get not only quick but lasting protection for stored products.

In fact, there was a vast difference between the effect of the wettable powders and the emulsions previously used. The greater toxicity of the wettable powders worked more quickly and more effectively.

**No matter when the check was made**—from 2 days to 28 days after application—an insecticide applied as a wettable powder killed many more Indian-meal moths than the same insecticide applied in emulsion form.

Take malathion, for example. Two days after application in a test with larvae, it proved 97 percent effective as a wettable powder, but only 30 percent in emulsion form. After 28 days, the wettable powder was 100 percent effective; the emulsion only 45 percent.

Although malathion was the best insecticide tested, other preparations showed much the same variations. In all cases—for malathion, methoxychlor, pyrethrum and piperonyl butoxide, and their combinations—wettable powders did the job better than emulsions.

To reach this conclusion, AMS personnel simulated storage conditions in the laboratory. Instead of grain or the other commodities infested by the Indian-meal moth, they used kraft paper laminated to aluminum foil for the test surface. This proved more workable, yet had the same chemical and absorptive characteristics

as the grain. The aluminum backing prevented the insecticide from going through the thin paper.

In a closed settling tower, various insecticides were applied to this specially prepared test paper. For water emulsions, the rate of application was 4 ml. per tower sprayed from a nozzle using 10 psi air pressure. Wettable powders were applied at the rate of 12 ml. with a 30 psi sprayer.

When dry, the treated papers were cut into strips and used to line pint ice cream cartons. Into these containers, newly emerged adults and last-stage larvae of the Indian-meal moth were introduced.

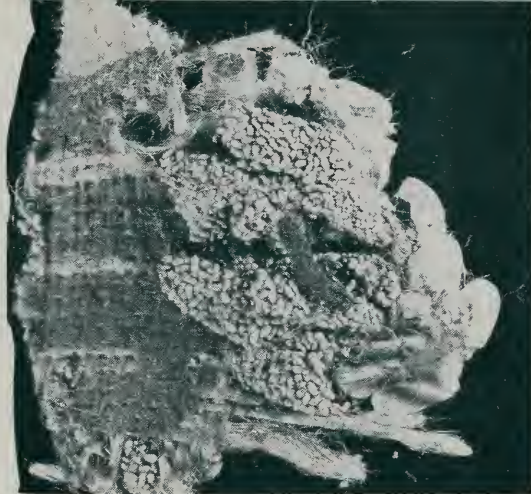
After 4 hours in the treated cartons, the insects were removed and placed in clean containers. Mortality was recorded 24 hours after exposure.

All tests were conducted under constant temperature and humidity conditions. Two series were made—the first with both larvae and adult moths after the treatment had aged 2 days, and the second, with larvae only, 28 days after the insecticide was applied.

Results showed that the adults of the Indian-meal moth were susceptible to residues of pyrethrum with piperonyl butoxide, malathion, and methoxychlor. The larvae, however, were considerably more resistant.

Malathion at 100 and 200 mg. per square foot killed more larvae than did methoxychlor at 400 mg. or pyrethrum plus piperonyl butoxide at 10 and 100 mg. There seemed to be no advantage in combining malathion with methoxychlor or with pyrethrum. Combinations are not considered more desirable than a single agent.

**The most significant finding** of the tests was the much better results obtained from the wettable powders than the emulsion formulas. If the same results can be obtained under actual storage conditions, the simple conversion from emulsions to wettable powders may be the answer to better prevention and control of the Indian-meal moth.



Ben H. Kantack and Hamilton Laudani are entomologists at the AMS Stored-Product Insects Laboratory in Savannah, Ga.



# Marketing Specialists Conduct--

## a clinic for clinics

*By Martin Kriesberg*

**L**IKE all marketing research in agriculture, the study of improved merchandising of foods in retail and wholesale stores has as its goal reduced handling costs, increased sales, and the reduction of waste. It is a means to help hold down marketing margins, give better consumer satisfaction, and allow the farmer increased sales at fair prices.

But it is not enough to discover improved methods through research. They benefit farmers, market agencies, and consumers only when they are put into use.

Last fall, when researchers of the Agricultural Marketing Service conducted a clinic on improved handling and merchandising practices for produce and frozen foods departments, they decided to study the effectiveness of the clinic itself. The goal was to determine what training methods were most effective and what roadblocks kept store personnel from accepting new procedures and methods.

Most of the 55 people participating in the clinic were produce managers in supermarkets of a cooperating chain. Others included supervisors, manager trainees, and store managers.

**Two principal ways were used** to measure the effectiveness of the clinic: A questionnaire was given to each of the participants asking their views on the clinic; and trained AMS personnel observed the activities of the participants in their respective stores after the clinic was over to find out how many of the recommended new methods had been adopted.

One of the first conclusions reached was that it is not enough to tell store personnel about new methods.

Martin Kriesberg is a marketing specialist in the Transportation and Facilities Branch of AMS.



Even when good communication techniques are used, such as visual aids and actual demonstrations, the ideas are not necessarily accepted and put into practice by clinic participants.

Yet, employee acceptance of the new methods and techniques is the key to the whole procedure. Forcing employees to adopt a new work method is not nearly as effective as making them feel the new practice is a product of their own thinking and its adoption is of their own choice.

**Ideas for simplifying work** procedures in produce departments of the supermarkets involved were more readily adopted by store personnel than those concerned with merchandising practices. Studies of participants actually on the job following the clinic bear this out.

This finding led to further investigation to find out what roadblocks hinder acceptance of the information presented in the clinic.

Company policy turned out to be an important factor. In the particular cooperating chain under study, definite policies had been laid down on merchandising methods in the produce and frozen foods departments. Store personnel were reluctant to adopt new methods that might be contrary to such policies. On the other hand, no definite policies had been set on specific work-saving methods, and the personnel felt more at liberty to adopt new methods.

Two conclusions may be drawn: 1. New ideas are more apt to be accepted by store personnel when they are not in conflict with company policy. 2. The value of the changes should be demonstrated and sold in terms of employee interest in saving work, holding down costs, and increasing sales.

An overall look at the study of clinic techniques led to these major points:

1. Ready-made or "canned" presentations of new work methods or merchandising practices need to be reappraised in the light of clinic objectives.

2. Straight "telling" and "showing" presentations may have their place in the initial training of new personnel, but this approach needs to be supplemented by "doing" if the purpose of the clinic is to gain acceptance of new practices among experienced employees. These people must be given a sense of participation in developing the new practices they are to follow.

3. Acceptance of the new methods is higher when the program is formally organized by the company involved and qualified personnel of the company are given the necessary authority and responsibility for carrying out the program.

4. An evaluation of a clinic's effectiveness cannot rest on the verbal responses of the participants. It should include some measurement of the extent to which participants put new ideas in actual practice.

**Personnel usually express** a much higher level of acceptance than they actually put into practice in their work. Several factors seem to have a bearing on this slip between professed acceptance and actual adoption of a new practice. For one thing, when the new ideas are passed along to the second level of personnel in the stores, they can easily become less clear cut and less urgent. Resistance to change often comes up. Employees are either not convinced the change would be beneficial to them, or simple inertia prevents any action on their part.

These findings may be of interest and value to other research personnel who face the problem of getting the results of their research into use. Details of this study and of others on similar subjects may be obtained from AMS Information Office, Washington 25, D. C.

One training method that proves to be more effective than simply "telling" in lectures and demonstrations is the actual "doing" by personnel participating in a training clinic. Here supermarket produce managers take part in this training method.





# CIGAR BINDERS

## SHIFT THE MARKET

*By C. I. Hendrickson*

**G**ROWERS of cigar binder tobacco are facing another curve in the market road as cigar manufacturers shift to processed binders. To proceed smoothly, growers will have to keep a sharp eye on changing demands for cigar binder types, quality requirements, and handling methods.

According to a recent study made by Agricultural Marketing Service, 20 percent of the 6 billion cigars turned out yearly now use processed binders. The figure should be over 30 percent by the end of the year. With present facilities, processed binders could hit 50 percent of the output.

Processed binders are made up of the entire tobacco leaf, with a little adhesive added. Only 56 to 62 percent as much tobacco is used for processed binders as for natural binders. So growers, naturally, wonder what's going to happen to their market.

Since processed binders mean sizable savings in labor, in the amount of tobacco in storage, and in handling, their use is bound to increase. One manufacturer has already announced processed binders for all the cigars his company will produce in the future.

**Greatest concern over the change** is felt in the Connecticut Valley and in Wisconsin. In the past, about two-thirds of the binder tobacco has come from the Connecticut Valley and one-fourth from Wisconsin. From 7 to 10 percent of the cigar binders was made up of non-binder tobacco grown mostly in Pennsylvania.

The inevitable increase in processed binders will mean changes in selling practices. Growers handle, in effect, two commodities: tobacco sorted into grades, for natural binders, and stemming tobacco for scrap chewing and, to a small degree, for short fillers in cigars. A grower who strips his tobacco into lots expects to get more money for the binder grades.

Tobacco aimed at the processed binder market isn't

sorted, but quality will still have a cash value. Processed binder types will be considered for aroma, taste, and the ability to improve with fermentation.

With the swing to processed binders, growers will have three market possibilities—sorted tobacco for binders, stemming tobacco, and unsorted tobacco for processed binders.

The big change for tobacco growers is simply this—it takes less tobacco to make processed binders than it does for natural binders. And that looks like less money.

**If processed binders are used** in one-half of the annual production of 6 billion cigars, tobacco requirements would decrease from about 53 to 51 million pounds. Sorted tobacco would drop from roughly 40 to 24 million pounds, while unsorted tobacco would rise from 13 to nearly 20 million pounds.

In terms of dollars, using figures based on 1950-54 averages, an all-natural binder market is worth \$22,700,000 to the growers. If half the annual output uses processed binders, returns drop to \$18,800,000. Sorted tobacco takes the biggest plunge—from \$18,700,000 to \$11,700,000. On the other hand, unsorted tobacco would more than double its market, rising from \$3,000,000 to roughly \$7,000,000.

Production costs of unsorted tobacco will be the real key to future profits in this shifting market. The use of unsorted tobacco should eliminate the need for—and expense of—extreme care in growing, harvesting, handling, sorting, and marketing.

Another boost to grower returns would be manufacturer premiums for a particularly desirable leaf.

Tobacco growers, who only recently maneuvered post-war acreage cuts and lower prices, already feel the impact of processed binders. Supply and demand will level the road as processed binders become an established part of the industry, but before production and price balance out, there may be some rough stretches.

C. I. Hendrickson is an agricultural economist in the Special Crop Section, Market Organization and Costs Branch, AMS.



**F**ROZEN prepared foods, the baby of the frozen food industry, is growing up fast. It's showing a healthy appetite for new consumer markets and developing new talents as it grows.

Researchers in the Agricultural Marketing Service, USDA, recently took measurements of the vigorous young industry and noted some of its developments.

The new prepared foods account for 3 pounds of food consumed per capita, compared to the total average of about 1,500 pounds. That isn't such a small figure when you consider that most of the firms haven't been around more than 10 years; half of them are less than 5 years old.

The list of foods completely or partially prepared for the housewife's final touch extends from the soup to dessert courses, and includes such exotic dishes as tacos and sukiyaki.

Not content with producing single dishes more or less ready for the table, the industry has come up with complete meals that need only heating and serving.

Essentially a postwar baby, the industry has grown to include some 170 foods. In 1954 the booming young business weighed in at a little over 300 million pounds of food produced. A year later it had gained almost two-thirds of its own weight to break the 500 million pound mark.

Potato products account for the biggest part of the industry output. If figures were available for all fish and shellfish items, they would probably be second on the list of top frozen prepared foods.

Only 10 items in the new industry came to more than 10 million pounds of production each, but they accounted for more than 80 percent of total output. They are french-fried potatoes, poultry potpies, fish sticks, dessert pies, beefsteak, meat potpies, mashed potatoes, meat patties, potato patties and cakes, and waffles and pancakes—127 million pounds for french-fried potatoes to 10 million for waffles and pancakes.

As new items appeared on the list of available prepared foods, others vanished from production. Meats and meat dishes had the greater share of product introduction from 1954 to 1955. On the other hand, poultry and meat potpies, fruit pies, and other bakery goods were most often taken out of production.

Frozen prepared foods have been largely a retail operation, but institutional uses now account for some 20 percent of production. Prepared meats and french-fries take the largest share of institutional markets.

The average operator produced around two and a

half million pounds of frozen prepared foods during 1955. Less than one-tenth of the firms produced 5 million pounds or more, but this group supplied about two-thirds of the total output.

Having passed its infancy, the frozen prepared foods industry now faces the problems of adolescence. As new markets open up, the processor needs less than trucklot or carlot shipments with zero-degree temperatures. Such facilities are reportedly hard to come by.

The industry as a whole is also going to have to keep a sharp eye on the quality of its products. It is only

## FROZEN PREPARED FOODS GROWING FAST



*By Robert B. Reese*

with consistently good and improving quality that the new industry will be able to hit its full stride and gain maximum consumer acceptance.

However, the industry has every reason to expect a healthy future. In 1946 prepared foods accounted for about 3 percent of the total frozen food production; in 1955 they were up to 11 percent.

Increased freezer space in retail stores and storage facilities in the home should make prepared foods far more available.

With the higher incomes of the postwar years, with more married women working, and fewer domestics at work in the homes, the demand for "built-in" services in food products should continue strong.

Robert B. Reese is an agricultural economist, Market Organization and Costs Branch, AMS.



## INDUSTRY-GOVERNMENT COOPERATION *Pays Off* IN MARKETING RESEARCH

**T**RANSPORTATION specialists of the Marketing Research Division, AMS, are starting a new \$62,500 research project that will cost the Department of Agriculture a neat \$12,500.

Sound like a bargain? As a matter of fact, this sort of thing is a rather common occurrence in the marketing research program of USDA.

Take the \$62,500 project for example. This project involves developing a method of rating the performance of refrigerated trucks. A preliminary study by AMS last year, in cooperation with the National Bureau of Standards, U. S. Department of Commerce, pointed to a wide variance in the ability of such trucks to reach and maintain desired temperatures for transporting frozen foods. The need for widely accepted performance standards was apparent.

Following publication of these findings, the motor carrier industry became interested in developing performance stand-

ards for refrigerated truck-trailers and a practicable method for rating them. Manufacturers of truck-trailers were also vitally interested in the problem.

The result is a joint industry-government research project that is expected to be completed by June 30, 1958. Out of the \$62,500 researchers estimate will be needed to complete the project, some \$32,750 will be contributed by the Truck-Trailer Manufacturers Association and other interests in the industry. This will be held in trust by USDA. The Bureau of Standards and Office of the Quartermaster General will put up the remainder of the necessary funds, and the Navy has agreed to furnish personnel and equipment to assist in the over-the-road tests.

**Grain aeration research** is another good example of cooperation with private companies in carrying out marketing research.

When the Agua Dulce Grain Company in Texas installed an aeration system in two of its storage bins in 1950, it was purely on an experimental basis. For a long time, a number of people in the grain industry, not to mention agricultural scientists, had dreamed of ways to eliminate the age-old process of moving stored grain through air to cool it and prevent spoilage.

After the first year of trying the aeration system in the two bins, company officials C. A. Eggleston and Frank Bailey thought they were on to something big. By 1954, they had expanded the use of aeration to an additional 190 cars of storage.

At this point, the Agua Dulce Company signed an agreement with the Handling and Facilities Research Section of AMS to have USDA continue the research on a more scientific basis. Under the agreement, the company was to cooperate with USDA in providing storage facilities, grain, and assistance of personnel in carrying on the research.

After two years of intensive research, USDA was able to report findings that have caught the attention of the grain



AMS wholesale-retail researchers work closely with cooperating companies who allow use of stores as laboratories for developing new facilities, work methods.



industry. Not only was it found possible to move air through the grain instead of moving the grain itself, but grain could be efficiently fumigated for insect control with the same equipment.

To the Agua Dulce Company, these research findings were important in many ways. Company officials estimate their savings may be as much as \$1,000 a month by using the new methods. In addition, the scientific approach made it possible for the company to know exactly what type equipment was best and what conditions were required to maintain grain quality.

To USDA, it meant another step forward in developing a new technique that promises to improve and maintain grain quality, make handling cost less, and reduce spoilage. To the public, it meant that valuable research had been carried on with a minimum of tax funds.

**Wholesaling and retailing research** is almost totally dependent upon the cooperation of private industry. AMS has worked with many chain and independent companies in conducting this type of research. At the present time, the Penn Fruit Company in Philadelphia is cooperating fully with AMS researchers in finding ways and means of reducing costs of handling produce in their supermarkets and of better serving the shopping needs of their customers.

Penn Fruit is providing space and facilities for a complete field office of AMS. The stores in which the research is being conducted were selected because they already had an efficient produce set-up.

Researchers study all operations as they are performed in the stores, develop new facilities and work techniques, and make reports to the cooperating firm.

Here again, cooperation pays off all around. USDA gets the use of the stores as laboratories without cost to the public. And through the cooperative efforts of both USDA and the supermarket chain, results of the research can be spread to the industry and new methods quickly put into use.

The whole procedure also pays off for the cooperating firm. Trained USDA technicians are made available to study operations at first hand; the cooperating company gets research findings ahead of competitors, and the research nearly always means reduced costs.

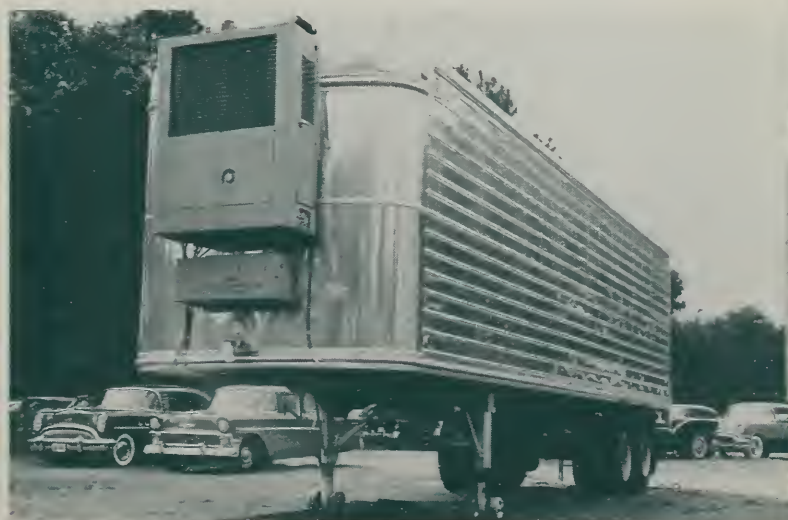
**The importance of private industry cooperation** in AMS marketing research is pointed out by Harry Trelogan, director of the program. "Our research," says Trelogan, "is of a highly practical nature for the most part."

"Our study of such problems as handling and transporting farm products from the farm to the retail store," continues Trelogan, "requires the use of facilities and equipment in actual commercial operation if it is to be of real value to our marketing and distribution system."

Industry, for the most part, is willing to provide these facilities, for it realizes the need for cooperation and the benefits to be gained. In a letter to its members recently, the National-American Wholesale Grocers' Association summed up its feeling this way: "The excellent work done by the Agricultural Marketing Service of the Department of Agriculture is well known throughout the distributive food trades. All segments of the industry benefit from the extensive research and valuable studies initiated, particularly by its Transportation and Facilities Branch."



Agua Dulce Company in Texas cooperated with AMS specialists in its aeration research. Here employee weighs in grain trucks.



Performance standards for refrigerated truck-trailers are being sought in over-the-road tests by AMS transportation specialists.



Author boards plane for tour of AMS direct distribution centers.

# Surplus Foods aid World's Needy

*By James A. Hutchins, Jr.*

The author and Howard W. Davis, both of AMS' Food Distribution Division, went abroad to see how our food surpluses are being used to aid needy, hungry persons throughout the world. Mr. Hutchins, Chief, Direct Distribution Branch, tells of his inspection trip through Europe in this article. Next month, Mr. Davis will report on what he saw in his "around the world" inspection of the Far East.

**I** ARRIVED in Austria on October 26—at the height of the Hungarian revolt.

Men, women, and children were streaming across the border. They came as they were, with only the clothes on their backs and with what little food they could carry.

In Austria, refugee welfare centers were being hastily set up. Our embassy staff was on a round-the-clock, emergency schedule. Everyone was pitching in to assemble the tons of food that would be needed to feed these fleeing people.

**The food was already in Europe** as part of the regular operation of our direct distribution program. It included nonfat dry milk, cheese, some fats, wheat flour, and cornmeal—foods which the Department of Agriculture had acquired under price support programs. It was located in the warehouses of the American voluntary relief organizations which do such a wonderful job distributing these surplus foods to the needy, hungry people of the world.

This was the overseas operation of the direct distribution program that I had gone to Europe to inspect. Congressmen had pointed out that the program had been stepped up sharply in size and scope—that it had become a huge operation. During 1956, we had dis-

tributed a total of some 2 $\frac{2}{3}$  billion pounds of food. About 1 $\frac{2}{3}$  billion pounds of this went overseas to needy persons in 84 countries.

**Congress felt that the administrators** of the program should take a first-hand look at how their distribution system operated. They sent me as a representative of AMS and USDA.

I flew out of Washington on October 14, with Tehran, in Iran, as my first stop. A picturesque and colorful city from the air, Tehran proved, on closer inspection, to be a city of great poverty. But through our distribution program, the people have been helped considerably.

I visited pre-natal clinics, hospitals, grade schools, secondary schools, and vocational schools where donated foods have been distributed. I also visited a milk station operated by a voluntary relief agency which gave milk made from American surpluses to pregnant women and mothers of nursing children, as well as preschool children.

In Greece, these same services were being offered by other voluntary relief agencies. In a boys' orphanage, I watched the preparation and serving of donated food. It constituted the bulk of the boys' diet. And though I do not know the Greek language, I could not help but



understand the gratitude those boys expressed.

In Italy, I witnessed the distribution of food to families at the distribution center in Rome. But I went a step further. I followed the food into the homes of some of the recipients.

I remember most vividly a family of four living in a small room almost entirely taken up by one large bed. A small hot plate under the cupboard was their only cooking facility. The cupboard contained only foods bearing the familiar markings of our foreign aid—"Donated by the People of the United States of America."

The story in West Germany was different. This country has made a phenomenal recovery. But here, too, segments of the population are still in dire need of food assistance. Through our voluntary relief agencies and the surplus foods donated by the U. S. Department of Agriculture, we are providing that aid.

Some food even goes to East German inhabitants. In West Berlin, I found many East Berliners lined up to receive food supplies. These people had sneaked across the border at the risk of their lives to get the American-donated food.

But it was in a distribution center in courtly, old-fashioned Spain that I found the most unique distribution program going on. A modern washing machine was busily whirling away in a Madrid ghetto.

It was no ordinary washing machine. One of 35 operated throughout the country, it was a device rigged to do a good quick job of reconstituting nonfat dry milk into a delicious, nutritious beverage for the undernourished people of Spain.

Many baby clinics and child clinics throughout Madrid are served with food from American surpluses. At one public school, I joined the children in having a glass of warm milk and a piece of cheese—donated by the American people. This constituted the school lunch program in the public school system of Spain.

Here, as is the case wherever donated foods are distributed, the packages plainly bore the marking: "Donated by the People of the United States of America." Signs and placards at the points of distribution prominently call attention to the fact that the foods come from the American people.

People in our embassies throughout Europe told me repeatedly that the direct distribution program is one of the United States' greatest aids in winning goodwill abroad. Although economic and technical assistance is also provided and appreciated, food given directly to the hungry and needy is something the people can understand. It is that tangible something they can see, feel, and really appreciate.



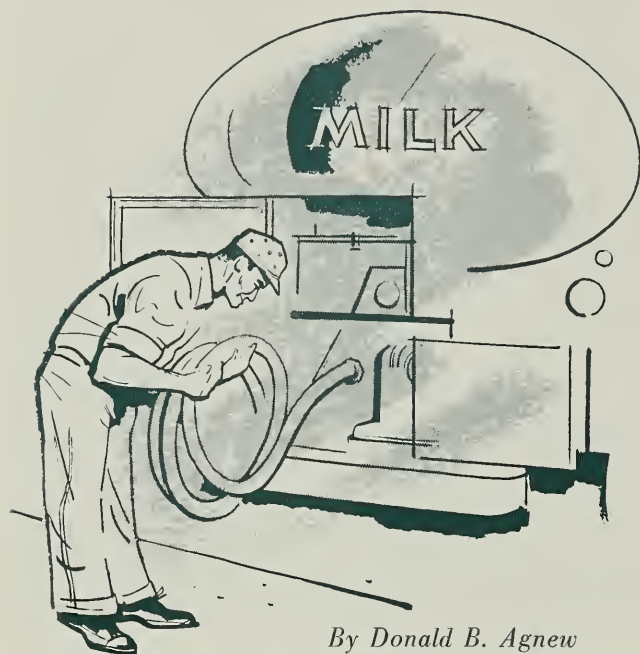
West German woman receives food package at distribution center.



Filling the holds with wheat for hungry Italian school children.



# MILK IN BULK TANKS MOVES AT LESS COST



By Donald B. Agnew

**T**HE trend to bulk milk assembly — the switch from can to bulk handling methods—may mean a savings of from \$5,000,000 to \$12,000,000 annually to the dairy industry.

That's the estimate made by economists in the Market Organization and Costs Branch of AMS, who are studying the impact of bulk milk assembly on the industry. They foresee a savings of about 2 to 5 cents per hundredweight when the trend toward conversion finally levels off, with large savings possible in the cost of receiving and cooling milk at plants fully converted.

With bulk assembly, the milk dealer, hauler, and dairy farmer each have a new set of costs and investments for cooling, hauling, handling, and receiving the milk. Milk marketing methods undergo a considerable reorganization when bulk assembly is adopted. A part of the job and a part of the costs of receiving milk is shifted from the city milk plant to the farm, and from plant labor to the truck driver and the farmer.

The milk hauler assumes added responsibilities in bulk-handling, and he is usually paid more than the driver on a can truck.

Donald B. Agnew is an agricultural economist in the Market Research Division of Agricultural Marketing Service.

The farmer, too, has more responsibilities, yet his returns are not so certain. He must cool both night and morning milk, often to a lower temperature than with milk in cans. His bulk tank is more expensive than a can cooler, and he must improve his milkhous, wiring system, and farm lane to accommodate bulk handling. He's able to offset part of this higher cost by reduced milk loss and less farm labor. He may also be able to negotiate price premiums and lower hauling rates for his bulk milk. Often these are temporary.

**But the uncertainties involved in converting** cause farmers to view bulk assembly with mixed feelings. Some feel the added investment and increased costs are prohibitive. Yet they are afraid that if they don't convert, they may lose their market outlet, and they may face lower prices or higher can-handling costs.

Other farmers accept the investment and costs of bulk assembly as the price of attracting or keeping dairy farm labor, and as a means to continue and expand their dairy enterprise. Farms with above-average milk production and with less pronounced seasonal variations in production tend to be among the leaders in installing bulk tanks. And they tend to increase their milk volume after installing the tanks.

Because of these varied reactions to bulk assembly, the shift to farm tanks continues to be uneven and spotty. However, on the whole, bulk assembly has proceeded at a rapid pace. The number of farm milk tanks doubled in 1955 and again in 1956. By December 1956, bulk tanks numbered nearly 60,000, with over 600 milk plants receiving part or all of their milk by bulk.

Two advantages of converting to bulk are immediately apparent. Bulk assembly has given to the dairy industry another means to hold down cow-to-consumer marketing costs. It also has provided a better way to maintain milk quality and increase mobility of milk.

**Increased mobility** means that milk in bulk can move more freely than milk in cans. It can be held longer without appreciable change in quality and can move longer distances to market. In addition, bulk milk loaded in tank trucks is of more uniform quality than milk in cans. It is already cooled and already mixed from the herds of several producers.

The ability to move milk more easily, in larger quantity, and over longer distances gives the bulk plant a chance to reorganize its milk procurement. At the same time, it gives many farmers a larger number of potential outlets for their milk. As the trend toward milk assembly continues, it may bring further changes to milk plants, haulers, and dairy farmers. But their adjustments to these changes can mean lower-cost milk marketing.



# *more* Bulk Milk Under Federal Orders

By Horace E. Armstrong

**B**ULK tank cooling of milk on dairy farms has continued its phenomenal rate of expansion into 1957.

A survey made last January by the Dairy Division of AMS showed that at that time new installations were being made in 57 of the 64 Federal order milk markets contacted. In a few markets nearly all the fluid milk producers had already installed bulk cooling tanks.

In 1956 the shift from can to bulk tank deliveries represented 13 percent of total market receipts. Market administrators in 35 markets predicted a further expansion of about the same amount in 1957.

In the Federal order milk markets included in the AMS survey 28,491 producers reported they were using bulk cooling tanks. These producers accounted for nearly 27 percent of total deliveries. If the northeastern markets are excluded (tank installations here are proceeding at a slower pace), bulk deliveries can claim 36 percent of the total.

In general, larger producers converted their dairy operations to the bulk tank system more readily than smaller producers. And with the installation of the tanks, these producers usually expanded their herds. Producers with bulk tanks delivered an average of 765 pounds of milk daily during January 1957; the overall average was 463 pounds.

Some producers own more than one tank. A few, particularly in the Southwest, transfer their milk directly into privately owned tank trucks for storage.

Most of these farm tanks range from 100 to 500

gallons. In the 38 markets reporting capacity data, 64 percent of the tanks held from 200 to 400 gallons. Only 2 percent were 100 gallons or less in capacity; 10 percent were of 500-gallon size or larger.

With this increased storage capacity has come less frequent milk collections. At the time of the survey, 82 percent of the milk routes in 43 Federal order markets were on an other-than-daily pickup basis.

**Ownership of bulk hauling equipment** was about evenly divided between independent haulers and cooperatives or handlers. In a third of the 49 markets reporting ownership data, independent haulers owned all bulk tank truck facilities; in another third, cooperatives and proprietary handlers were the sole owners. The remaining third of the reporting markets used equipment owned by several different groups. Often truck tanks are owned by cooperative associations or handlers and leased to independent truck operators.

The Louisville market reported the fastest rate of bulk tank installations during the past year. From January 1956 to January 1957, deliveries from farm bulk tanks in that market climbed from 26 to 89 percent of total receipts. By January 1958, nearly all of the Louisville milk supply probably will come from farm bulk tanks.

This seems to be the story throughout the country. The trend toward bulk cooling and handling has proceeded at a much faster pace than anyone anticipated. And there is no leveling off in sight. Market analysts see continued conversion in most markets during the next year.

The author is a marketing specialist in the Dairy Division, AMS.





## MARKETING AGREEMENTS INSURE

# *High*

By M. E. McGaha

**W**HEN consumers buy fruit that has been marketed under Federal marketing agreement programs, they can make their selection with confidence. Shipment of only high-quality fruits is permitted under the regulations of these programs. Anything short of specified grades, sizes, and qualities is kept out of normal trade channels or diverted to other uses.

Administered by Agricultural Marketing Service, the marketing agreement programs on fresh deciduous fruits began way back in 1937. Congress paved the way to start the quality fruit rolling with the passage of the Agricultural Marketing Agreement Act. The purpose was to enable producers, in cooperation with the U. S. Department of Agriculture, to help establish and maintain orderly marketing of their products in an effort to obtain parity prices.

Some of the deciduous fruit regulatory programs have been in continuous successful operation for 18 years. Most recent additions are Washington sweet cherries and apricots.

How big is a plum? When is a peach mature? What grades and sizes of peaches, pears, apricots, and cherries should be shipped to market? These are a few of the questions that must be answered by the Department and the marketing agreement administrative committee.

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These committees are selected by the Secretary of Agriculture to recommend regulations prescribing the grade, size, and quality of the fruits shipped to market. Members are chosen from nominations made by growers and/or handlers of the regulated fruit.

But why is it necessary for a committee and the Department to decide what grades, sizes, and qualities should be shipped? What are the conditions that cause growers to put restrictions on the commodities they grow? The answer lies in the economics of marketing. The law of supply and demand is just as active in the field of fruit marketing as it is in any other. Housewives shopping for fresh fruit are discriminating customers. When a particular fruit is plentiful, the portion that is shipped to market has to be extra good.

Farmers have learned from experience that the grades, sizes, and qualities of fruit that give the least consumer satisfaction should not be marketed. Such fruit pulls down the price for the more desirable fruit, and growers' total returns are lowered.

Some qualities of fruit never give consumer satisfaction. Such fruit should not be shipped even when the fruit is scarce. But most fruit people are optimists, and poor fruit often is shipped in the hope that it can be sold at a fair price. In the absence of restrictions applying to all, it is impossible to stabilize the market.

Although program provisions for the various fruits appear quite similar, there are often variations tailored





# Quality Fruit

to fit the needs of a particular fruit industry as well as the characteristics of the commodity. For example, the Tokay grape program, in addition to grade, size, and quality provisions, contains authority to limit the quantity of grapes that may be shipped over each 3-day period. This feature is used to prevent a glut on the market.

The winter pear program requires the committee to recommend a regulation not later than August 1. This is necessary because winter pears are packed and stored, and the regulation should be issued before the storage period begins.

The Washington cherry and apricot programs give the administrative committee authority to regulate containers and pack of containers, and to engage in market research and development. The committee also issues different regulations for different districts if weather conditions cause production of a different quality fruit in one district or another.

**Regardless of the differences** in the regulatory provisions, the aim of those administering the various marketing agreements and orders is to create orderly marketing conditions and to assure that only the best available produce is placed on the market. All recognize the need for establishing regulatory provisions which are flexible enough to vary with crop conditions from year to year.

This type of administration has worked well. Farm-



ers and handlers have continued to give the program their cooperation. After a market agreement and order is put into operation and regulations are established, growers tend to make a greater effort to grow the grades, sizes, and qualities that have proved satisfactory to consumers and are permitted to be shipped. Shippers, in turn, concentrate on packing a uniform, good-quality product in accordance with the regulations. As a result, the consumers receive better quality fruits.

**There's also another beneficial aspect** of the marketing agreements programs—one that's not included in the written rules and regulations. It's the mutual understanding that the programs have developed among the growers, shippers, and industry leaders.

Through the programs, these people have been brought together to talk out their problems. Often what had been considered an exclusive problem of one group is found to be a joint problem of both the grower and the shipper. Consideration of these problems by both groups usually results in a more sympathetic understanding of the position of each. Under such conditions, more acceptable solutions are found.

This ability of an industry to work together helps make the marketing agreement programs for deciduous fruits successful. It makes it possible for the programs to benefit all concerned—the grower, the shipper, and the consumer.

## NEW POTATO WAREHOUSE CRANE

**A** NEW potato warehouse crane developed by AMS researchers at the Red River Valley Potato Research Center in Minnesota helps fill below-floor bins easier and with less cost.

The new crane maneuvers easily, can operate in a 10-foot drive, and can support conveyors at any desired point. In addition, it saves labor costs by eliminating the need for a worker in the bin.

Development of the crane has come in answer to modern handling needs. No longer are below-ground bins filled with potatoes that are slid down planks and emptied a bag at a time. Now potatoes are harvested directly into trucks and conveyed into the bins.

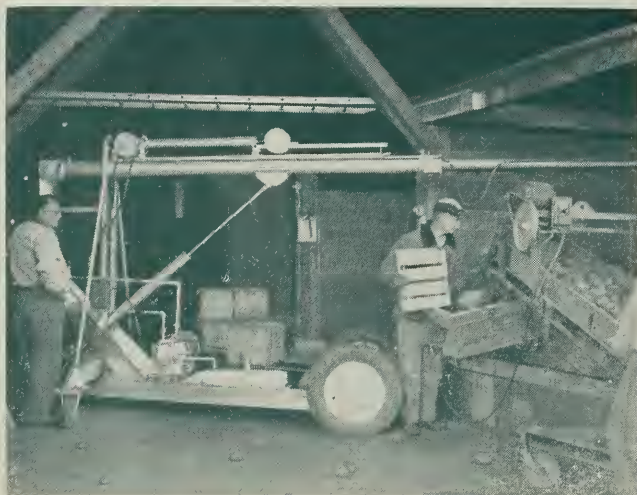
This recent change has created the problem of supporting and moving heavy conveyors over deep bins—a time-consuming and often dangerous practice. Deep bins extend to 14 feet below the alley floor and are filled to 10 feet above it. Narrow alleys further complicate handling problems.

Many potatoes are injured because it is hard to properly handle the cumbersome equipment supported by a block-and-tackle hooked high above the bin floor. What was needed was a better way to support conveyors at any desired position and height.

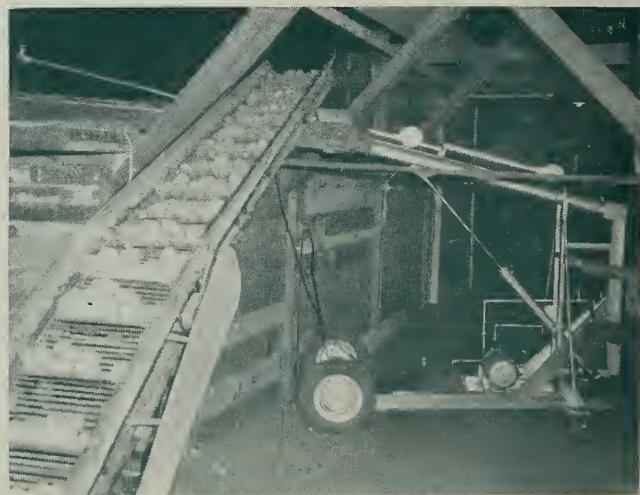
Here's where the crane comes in. With its telescoping boom, it can support two trough belt conveyors to completely fill the bins. Or the crane can support a conveyor and canvas chute to fill the bins up to the alley floor. It can swing conveyors from side to side and reach out as much as 16 feet into the bin.

This maneuverability makes it unnecessary to have a worker walking on potatoes in the bin to manipulate the canvas chute when this method is used. And a worker doesn't have the dangerous and difficult task of rigging heavy tackle near a ceiling more than 25 feet above the floor of the bin.

Recently, the crane was made to be self-propelled. This further increases its usefulness.



Crane supports equipment used to fill below-floor potato bins.



Here the new crane supports conveyor as potato bin is topped.